

Date: Sat, 13 Aug 94 04:30:15 PDT  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #259  
To: Ham-Ant

Ham-Ant Digest                      Sat, 13 Aug 94                      Volume 94 : Issue    259

Today's Topics:

                    Galvanized wire at RF?  
                    Radio signalling under water?  
                    Should feedline lenght change the VSWR?  
                    SWR calculation needed....

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 10 Aug 1994 21:10:54 -0700  
From: news.sprintlink.net!news.world.net!news.teleport.com!news.teleport.com!not-  
for-mail@uunet.uu.net  
Subject: Galvanized wire at RF?  
To: ham-ant@ucsd.edu

I'm going to erect a temporary rhombic (440 feet/leg) on a cousin's farm  
for an upcoming contest operation. he's got miles of galvanized electric  
fence wire spooled and available. Does anyone have any data on the  
suitability of galvanized wire at 3.5 and 7 MHz? Failing that, does  
anyone have any lead on inexpensive \*real\* wire that can be tensioned to  
provide a 440 foot span with limited droop and stretch? All info  
welcomed. Thanks.

Bill Conwell  
K2PO/7

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klarquis@teleport.COM Public Access User --- Not affiliated with TECHbooks  
Public Access UNIX and Internet at (503) 220-1016 (2400-14400, N81)

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Date: Fri, 12 Aug 1994 18:33:23 GMT  
From: lll-winken.llnl.gov!noc.near.net!ns.draper.com!news.draper.com!  
jwy1294a.draper.com!jyoungberg@ames.arpa  
Subject: Radio signalling under water?  
To: ham-ant@ucsd.edu

In article <fred-mckenzie-1008941712250001@k4dii.ksc.nasa.gov> fred-  
mckenzie@ksc.nasa.gov (Fred McKenzie) writes:  
>From: fred-mckenzie@ksc.nasa.gov (Fred McKenzie)  
>Subject: Re: Radio signalling under water?  
>Date: Wed, 10 Aug 1994 17:12:25 -0400

>In article <acooneyCu8Cqy.G2u@netcom.com>, acooney@netcom.com (Alan  
>Cooney) wrote:  
>> I'm in need of advice and/or information on getting signals through  
>> to a submerged remote vehicle.....I've considered using ultrasonics,

>Alan-

>There are systems used by divers for similar applications. They use  
>ultrasonic sound as a "carrier", which is modulated as if it were a radio  
>carrier.

>I think the frequency is in the order of 100 KHz to 200 KHz. It seems  
>that there is a trade-off involved in selection of a frequency. At lower  
>frequencies, the ambient sea noises (waves, whales, et cetera),  
>interfere. At higher frequencies, signal attenuation limits the range.  
>There is a "window" between these, that is useable for communications.

>I suggest you ask for information at a diver supply store. I believe  
>there are at least two companies that make these systems. (My information  
>is from about 15 years back, so please forgive my faulty memory!)

>73, Fred, K4DII

Coincidentally, I just ran into an article this morning in the library:

Coates, Dr Rodney, "Underwater Acoustic Communication," Sea Technology  
Magazine, July 1994, pp 41-47.

Excellent overview coverage, especially in things like relating range and  
frequency, power requirements, keying formats, and what's on the market.

Readable, too.

73,  
Skip, K1NKR

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Date: 12 Aug 1994 19:41:03 -0400  
From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net  
Subject: Should feedline length change the VSWR?  
To: ham-ant@ucsd.edu

I was hoping that perhaps one of the antenna guru's could help with a question about SWR that I have. I recently bought a new vertical antenna which I installed on the roof of my house. It is one of the center fed type of verticals that isn't supposed to need a ground plane that Company "G" advertizes quite widely. After I installed it I check the VSWR in the shack with my VSWR bridge and found that the VSWR on most of the bands was rather high. In most cases between 2 to 1 and 4 to 1. I then went up to the base of the antenna with my Autek RF Analyst and measure the VSWR and found that all of the bands had a very high SWR. For example, 20 Meters was 4.1 at the bottom of the band and 5.0 at the top end. 75 meters was the best with a reading of 1.6 to 1 near the top of the band. So I called Company "G" and spoke to their tech support person and he told me that one should not measure the VSWR at the antenna. Instead it had to be measured at the end of the feed line which had to be 65 feet long and that the VSWR would change depending on the length of the feed line. I told him that I was under the impression that the VSWR on the feed line should not change with length unless the load, in this case the antenna were unbalanced. He launched into a long lecture about how this was only true if the load presented a perfect 50 Ohm non reactive resistance and that in the real world of an antenna this condition could not be met and therefore the VSWR would change as you change the length of the feed line. This isn't how I understood things worked from reading Walter Maxwell's book "Reflections" but maybe I missed something. It wouldn't be the first

time! Then he went on to tell me that the VSWR on 75 meters should be lower than 1.6 and that the rest of the antenna wouldn't work unless the VSWR on 75 was lower. He asked if I had any other antennas near the vertical and I said that I had a 40 foot freestanding tower about 70 feet away and he told me that the tower was messing up the vertical because it was less than one wavelength away! Any one have any ideas about that one?? I want to call him back and further our discussion but I want to make sure I have my facts straight first. Is what this guy told me correct or is he just putting out a smoke screen? Thanks for taking the time to read this and I will appreciate any and all feed back.

Terry KJ7F

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Date: Thu, 11 Aug 1994 20:23:38 GMT  
From: ncrwg2.ncr.com!ncrhub2!ranger!cn2935.DaytonOH.NCR.COM!jra@uunet.uu.net  
Subject: SWR calculation needed....  
To: ham-ant@ucsd.edu

In article <CuDq3D.GAG@hpcvsnz.cv.hp.com> tomb@lsid.hp.com (Tom Bruhns) writes:  
>From: tomb@lsid.hp.com (Tom Bruhns)  
>Subject: Re: SWR calculation needed....  
>Date: Thu, 11 Aug 1994 16:35:36 GMT

>Brian Ellse (briane@goofy.iaccess.za) wrote:

>: Greetings to one and all,

>: Can somebody please tell me the formula for calculating SWR when given only  
>: the forward and reflected power in watts.

>: i.e Bird Inline reads 15w forward and 6w reverse. SWR=?

[ derivation of the formula deleted, resulting in: ]

>  $SWR = (\sqrt{fwdpwr} + \sqrt{rvrspwr}) / (\sqrt{fwdpwr} - \sqrt{rvrspwr})$

>(The  $\sqrt{|Z_o|}$  terms cancelled out between numerator and denominator.)

>It's useful to draw a graph of SWR versus reverse/fwd power and tape it  
>to the back of the Bird. It's not too hard to put the above formula  
>into a spreadsheet and use it to draw the graph for you. The square root

>causes some interesting effects: the reverse/fwd power ratio to get to  
>1.05:1 SWR, for example, is about .0006 -- pretty hard to read accurately!  
>The example above, 6w reverse and 15 fwd, is about 4.44:1 SWR.

An awfully handy fact in the real world is that 10% reflected power (ie, 10 watts forward and 1 watt reflected) equals 2:1 SWR (well, actually, 1.93:1). Since many of us figure that a SWR of 2:1 or less is a reasonable match (at least in most cases), checking for <10% reflected power is a simple go/no-go antenna system test.

John AG9V  
jra@lawdept.daytonOH.ncr.com

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End of Ham-Ant Digest V94 #259  
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